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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:

Michael Alexander Cochran, Richworth Folland, James William Nicholas, Melvin Edward Riddell Robinson

Serial No.: Not yet assigned

Group Art Unit: Not yet assigned

Filed: Herewith

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For: IMPROVEMENTS IN AND RELATING TO PACKAGING

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DATE OF DEPOSIT: October 30, 2001

Assistant Commissioner  
for Patents  
Washington, D.C. 20231

Dear Sir:

**PRELIMINARY AMENDMENT**

**In the Claims:**

Kindly delete Claim 1 without prejudice or disclaimer.

Kindly add new Claims 39-68 as follows:

39. (New) A wall for a package which comprises multiple polymeric layers, said multiple polymeric layers comprising a layer (A) and a layer (B), said layer (A) comprising an oxidizable organic polymer which scavenges oxygen, and a transition metal in a positive oxidation state, wherein said layer (A) the oxidizable organic polymer, the transition metal and

the respective amounts thereof are selected so that the layer (A) will scavenge oxygen during a period of oxygen scavenging, the period of oxygen scavenging being maintainable for at least 20 days at 23° C and 50% relative humidity and the permeance of the wall for oxygen during said period of oxygen scavenging being not more than  $0.5 \text{ cm}^3/(\text{m}^2 \text{ atm day})$  and at most three-quarters of that which it would have had in the absence of oxygen scavenging; and said layer (B) comprising a nonoxidizable polymer.

40. (New) The wall according to claim 39, wherein said layer (A) is adjacent said layer (B).

41. (New) The wall according to claim 40, wherein said layer (A) is between and adjacent two said layers (B), one on either side.

42. (New) The wall according to claim 39, wherein said wall is in the form of a rigid container which is self-supporting when empty.

43. (New) The wall according to claim 39, wherein said oxidizable polymer is a copolymer of m-xylylenediamine and adipic acid.

44. (New) The wall according to claim 43, wherein the polymer in said layer (A) consists entirely of said copolymer of m-xylylenediamine and adipic acid.

45. (New) The wall according to claim 44, wherein said nonoxidizable polymer is polyethylene terephthalate.

46. (New) The wall according to claim 45, wherein said layer (A) is adjacent to said layer (B).

47. (New) The wall according to claim 46, wherein said layer (A) is between and adjacent two said layers (B), one on either side.

48. (New) The wall according to claim 47, wherein the wall is in the form of a beverage bottle.

49. (New) The wall according to claim 39, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3 / (\text{m}^2 \text{ atm day})$  is at least 20 days.

50. (New) The wall according to claim 49, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3 / (\text{m}^2 \text{ atm day})$  is at least 100 days.

51. (New) The wall according to claim 39, wherein the permeance of the wall for oxygen during said period is not more than one-half of what it would have been in the absence of oxygen-scavenging.

52. (New) The wall according to claim 51, wherein the permeance of the wall for oxygen during said period is not more than one-tenth of what it would have had in the absence of oxygen-scavenging.

53. (New) The wall according to claim 39, wherein the permeance of the wall for oxygen falls to three-quarters of what it would have been in the absence of oxygen scavenging within 30 days of the wall being fabricated.

54. (New) A bottle comprising a wall made of multiple polymeric layers, said multiple polymeric layers comprising at least one layer (A) and at least one layer (B); said at least one layer (A) comprising an oxidizable organic polymer which scavenges oxygen and a

transition metal in a positive oxidation state, wherein in said at least one layer (A) the oxidizable organic polymer, the transition metal and the respective amounts thereof are selected so that the wall will scavenge oxygen during a period of oxygen scavenging, the period of oxygen scavenging being maintainable for at least 20 days at 23° C and 50% relative humidity and the permeance of the wall for oxygen during said period of oxygen scavenging being not more than  $0.5 \text{ cm}^3/(\text{m}^2 \text{ atm day})$ ; and said at least one layer (B) comprising a nonoxidizable polymer.

55. (New) The bottle according to claim 54, wherein said wall is self-supporting when empty.

56. (New) The bottle according to claim 54, wherein said oxidizable polymer is a copolymer of m-xylylenediamine and adipic acid.

57. (New) The bottle according to claim 56, wherein said nonoxidizable polymer is polyethylene terephthalate.

58. (New) The bottle according to claim 57, wherein at least one of said layers (A) is adjacent to at least one of said layers (B).

59. (New) The bottle according to claim 58, wherein the polymer in said layer (A) consists of said copolymer of m-xylylenediamine and adipic acid.

60. (New) The bottle according to claim 54, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3/(\text{m}^2 \text{ atm day})$  is at least 20 days.

61. (New) The bottle according to claim 60, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3/(\text{m}^2 \text{ atm day})$  is at least 100 days.

62. (New) The bottle according to claim 54, wherein the permeance of the wall for oxygen during said period is not more than one-half of what it would have been in the absence of oxygen-scavenging.

63. (New) The bottle according to claim 60, wherein the permeance of the wall for oxygen during said period is not more than one-tenth of what it would have had in the absence of oxygen scavenging.

64. (New) The bottle according to claim 54, wherein the permeance of the wall for oxygen falls to three-quarters of what it would have been in the absence of oxygen scavenging within 30 days of the wall being fabricated.

65. (New) A bottle comprising of a wall made of multiple polymeric layers, said multiple polymeric layers comprising at least one layer (A) having two nonoxidizable layers (B) adjacent thereto, one on either side; the polymeric material of said at least one layer (A) consisting entirely of an oxidizable organic copolymer of m-xylylenediamine and adipic acid, and said at least one layer (A) further comprising a transition metal in a positive oxidation state, wherein in said at least one layer (A) the oxidizable organic copolymer, the transition metal and the respective amounts thereof are selected so that the wall will scavenge oxygen during a period of oxygen scavenging during which the permeance of the wall for oxygen is not more than 0.5 cm<sup>3</sup>/ (m<sup>2</sup> atm day); and each said at least one nonoxidizable layer (B) comprising polyethylene terephthalate.

66. (New) The bottle according to claim 65, containing a beverage.

67. (New) The bottle according to claim 66, wherein said beverage is beer, wine ,  
fruit juice, or soft drink.

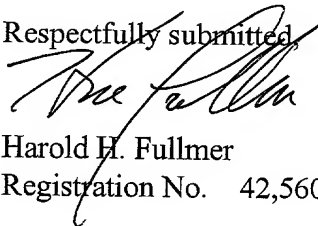
68. (New) The bottle according to claim 67, wherein said beverage is beer.--

**REMARKS**

Applicant submits the claims in the enclosed Preliminary Amendment that are identical  
to those determined to be allowable in the parent case.

Attached hereto is a marked-up version of the changes made to the specification  
and claims by the current amendment. The attached page is captioned "Version with markings  
to show changes made."

Respectfully submitted,



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Registration No. 42,560

Date: *Oct 30, 2001*

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## VERSION WITH MARKINGS TO SHOW CHANGES MADE

In the Claims:

Kindly delete Claim 1 without prejudice or disclaimer.

Kindly add new Claims 39-68 as follows:

39. (New) A wall for a package which comprises multiple polymeric layers, said multiple polymeric layers comprising a layer (A) and a layer (B), said layer (A) comprising an oxidizable organic polymer which scavenges oxygen, and a transition metal in a positive oxidation state, wherein said layer (A) the oxidizable organic polymer, the transition metal and the respective amounts thereof are selected so that the layer (A) will scavenge oxygen during a period of oxygen scavenging, the period of oxygen scavenging being maintainable for at least 20 days at 23° C and 50% relative humidity and the permeance of the wall for oxygen during said period of oxygen scavenging being not more than  $0.5 \text{ cm}^3/(\text{m}^2 \text{ atm day})$  and at most three-quarters of that which it would have had in the absence of oxygen scavenging; and said layer (B) comprising a nonoxidizable polymer.

40. (New) The wall according to claim 39, wherein said layer (A) is adjacent said layer (B).

41. (New) The wall according to claim 40, wherein said layer (A) is between and adjacent two said layers (B), one on either side.

42. (New) The wall according to claim 39, wherein said wall is in the form of a rigid

container which is self-supporting when empty.

43. (New) The wall according to claim 39, wherein said oxidizable polymer is a copolymer of m-xylylenediamine and adipic acid.

44. (New) The wall according to claim 43, wherein the polymer in said layer (A) consists entirely of said copolymer of m-xylylenediamine and adipic acid.

45. (New) The wall according to claim 44, wherein said nonoxidizable polymer is polyethylene terephthalate.

46. (New) The wall according to claim 45, wherein said layer (A) is adjacent to said layer (B).

47. (New) The wall according to claim 46, wherein said layer (A) is between and adjacent two said layers (B), one on either side.

48. (New) The wall according to claim 47, wherein the wall is in the form of a beverage bottle.

49. (New) The wall according to claim 39, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3 / (\text{m}^2 \text{ atm day})$  is at least 20 days.

50. (New) The wall according to claim 49, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3 / (\text{m}^2 \text{ atm day})$  is at least 100 days.

51. (New) The wall according to claim 39, wherein the permeance of the wall for oxygen during said period is not more than one-half of what it would have been in the absence of oxygen-scavenging.



52. (New) The wall according to claim 51, wherein the permeance of the wall for oxygen during said period is not more than one-tenth of what it would have had in the absence of oxygen-scavenging.

53. (New) The wall according to claim 39, wherein the permeance of the wall for oxygen falls to three-quarters of what it would have been in the absence of oxygen scavenging within 30 days of the wall being fabricated.

54. (New) A bottle comprising a wall made of multiple polymeric layers, said multiple polymeric layers comprising at least one layer (A) and at least one layer (B); said at least one layer (A) comprising an oxidizable organic polymer which scavenges oxygen and a transition metal in a positive oxidation state, wherein in said at least one layer (A) the oxidizable organic polymer, the transition metal and the respective amounts thereof are selected so that the wall will scavenge oxygen during a period of oxygen scavenging, the period of oxygen scavenging being maintainable for at least 20 days at 23° C and 50% relative humidity and the permeance of the wall for oxygen during said period of oxygen scavenging being not more than 0.5 cm<sup>3</sup>/ (m<sup>2</sup> atm day); and said at least one layer (B) comprising a nonoxidizable polymer.

55. (New) The bottle according to claim 54, wherein said wall is self-supporting when empty.

56. (New) The bottle according to claim 54, wherein said oxidizable polymer is a copolymer of m-xylylenediamine and adipic acid.

57. (New) The bottle according to claim 56, wherein said nonoxidizable polymer is polyethylene terephthalate.

58. (New) The bottle according to claim 57, wherein at least one of said layers (A) is adjacent to at least one of said layers (B).

59. (New) The bottle according to claim 58, wherein the polymer in said layer (A) consists of said copolymer of m-xylylenediamine and adipic acid.

60. (New) The bottle according to claim 54, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3/(\text{m}^2 \text{ atm day})$  is at least 20 days.

61. (New) The bottle according to claim 60, wherein the period during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3/(\text{m}^2 \text{ atm day})$  is at least 100 days.

62. (New) The bottle according to claim 54, wherein the permeance of the wall for oxygen during said period is not more than one-half of what it would have been in the absence of oxygen-scavenging.

63. (New) The bottle according to claim 60, wherein the permeance of the wall for oxygen during said period is not more than one-tenth of what it would have had in the absence of oxygen scavenging.

64. (New) The bottle according to claim 54, wherein the permeance of the wall for oxygen falls to three-quarters of what it would have been in the absence of oxygen scavenging within 30 days of the wall being fabricated.

65. (New) A bottle comprising of a wall made of multiple polymeric layers, said

multiple polymeric layers comprising at least one layer (A) having two nonoxidizable layers (B) adjacent thereto, one on either side; the polymeric material of said at least one layer (A) consisting entirely of an oxidizable organic copolymer of m-xylylenediamine and adipic acid, and said at least one layer (A) further comprising a transition metal in a positive oxidation state, wherein in said at least one layer (A) the oxidizable organic copolymer, the transition metal and the respective amounts thereof are selected so that the wall will scavenge oxygen during a period of oxygen scavenging during which the permeance of the wall for oxygen is not more than  $0.5 \text{ cm}^3 / (\text{m}^2 \text{ atm day})$ ; and each said at least one nonoxidizable layer (B) comprising polyethylene terephthalate.

66. (New) The bottle according to claim 65, containing a beverage.

67. (New) The bottle according to claim 66, wherein said beverage is beer, wine , fruit juice, or soft drink.

68. (New) The bottle according to claim 67, wherein said beverage is beer.--